

EX-105-1-1

File
Vol. 1108

CLASSIFICATION CHANGED TO

OPS IMMEDIATE

By authority of AFR 205-2
John M. Lefand APR 1966

65478ST WG VANDENBERG AFB CALIF
AF SPACE SYSTEMS DIVISION LOS ANGELES CALIF

65478ST WG /SATELLITE/ SUGNYVALLE CALIF

LOCKHEED MISSILE & SPACE DIVISION SUGNYVALLE CALIF

LOCKHEED MISSILE & SPACE DIVISION VANDENBERG AFB
CALIF /COURIER/ ZEN

DOUGLAS AIRCRAFT COMPANY VANDENBERG AFB CALIF
/COURIER/ ZEN

INFO: 1 MISSILE DIV VANDENBERG AFB CALIF /COURIER/ ZEN

65478ST WG VANDENBERG AFB CALIF /COURIER/ ZEN

65478ST WG PATRICK AFB FLORIDA

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DOO DIR 1300.10

SECRET FROM VWZD-10-4-65-2

LOSA FOR REZD SEMCLN 654 TW FOR COL MOORE SEMCLN LMD/

SUGNYVALLE FOR TWCA-3 /H.J. BRIEFING/ SEMCLN LMD/VAPE

FOR DRFT 65-44 SEMCLN DAC/VAPE FOR MR. HECKMAN. INFO CLN

1 MD FOR COMMAND POST AND DOOS SEMCLN 654 TW FOR VWZL/

Cy #1 78 up

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JUN

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OFFICE SYMBOL VWZD					
NAME (SIGNATURE) R. S. Lefand, Captain, USAF					
DATE 8-4-73					

LOUIS A. BERRY, JR., Colonel, USAF
Deputy Commander for Space Systems

CONTEST W/ VANDERBILT AND CALIF

MR. RECHER/RECHER/RECHER TEST W/ FOR COL WENALL. SUBJECT
CLN DISCOVERER XXIV PRELIMINARY LAUNCH SUMMARY. FOLLOW-
ING IS THE 48 HOUR SUMMARY REPORT ON THE LAUNCHES OF
DISCOVERER XXIV /THUS W/ AGENDA B 1102/.

1. PRE-LAUNCH OPERATIONS

COUNTDOWN OPERATIONS WERE STARTED AT 0530 PDT ON
6 JUNE 1961 AND PROCEEDED SMOOTHLY, WITHOUT HOLDS, TO
THE TERMINAL COUNT. TERMINAL COUNTDOWN WAS STARTED AT
1501 PDT. THE FIRST AND ONLY HOLD WAS CALLED DURING PHASE
5 OF THE TERMINAL COUNTDOWN TO ALLOW THE THER LOC TANK
PRESSURE TO VENT DOWN TO THE PROPER LEVEL. THE HOLD WAS
ISSUED TO PERMIT THE MANUAL RETRACTION OF A LAUNCHER
PIC WHICH DID NOT FULLY RETRACT AUTOMATICALLY. DURATION
OF THE HOLD WAS 15 MINUTES, AND THE COUNT WAS RECYCLED
TO T - 2 MINUTES WHEN IT WAS RESUMED. THE COUNT, THERE-
AFTER, PROCEEDED SATISFACTORILY TO LIFTOFF WHICH OCCURRED
AT 1616.34 PDT. THIS WAS THE FIRST ATTEMPT TO LAUNCH THE
DISCOVERER XXIV VEHICLE.

2. BOOST PHASE

A. DURATION OF THE BOOST PHASE WAS 3.3 SECONDS LESS
THAN PREDICTED. HOWEVER, THE POSITION AND VELOCITY OF THE

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BOOSTER W-8 YARDING AND CALIB
VEHICLE AT BOOSTER MAIN ENGINE CUTOFF WERE CLOSE TO THE
PREDICTED MISC VALUES. BOOSTER STEERING AND EVENT-TIME
COMMANDS WERE TRANSMITTED BY THE STL GUIDANCE SYSTEM,
STARTING AT T = 89.6 SECONDS, AND THE PERFORMANCE OF THE
GUIDANCE SYSTEM AND THE RESPONSE OF THE VEHICLE APPEAR
TO HAVE BEEN SATISFACTORY. MECO OCCURRED AT T = 147.44
SECONDS IN RESPONSE TO A GUIDANCE SYSTEM COMMAND, AND
THE VEHICLE ENGINE WERE CUT-OFF BY THE ONBOARD TIMER
AFTER 9.2 SECONDS OF SOLO OPERATION. PRELIMINARY
CALCULATIONS SHOW THAT THE BOOSTER COAST APOGEE ALTITUDE
WAS 0.1 M.M. LOW AND THE COAST APOGEE VELOCITY WAS 25
FPS LOW WHEN COMPARED WITH PREFLIGHT PREDICTED VALUES.

B. OSCILLATIONS IN THE 20 CPE FREQUENCY RANGE ARE
EVIDENT IN THE THOR PROPELLANT PUMP INLET PRESSURE AND
CHAMBER PRESSURE DATA AND IN BOTH THE THOR AND AGENA
ACCELEROMETER DATA. THE OSCILLATIONS START AT LIFTOFF
AND CONTINUE THROUGHOUT THE BOOST PHASE. THE AMPLITUDE
OF THE OSCILLATIONS INCREASES SIGNIFICANTLY AT T = 120
SECONDS AND REMAINS AT THE HIGHER LEVEL THROUGH MECO.
THE AMPLITUDES OF THE OSCILLATIONS WERE SIMILAR TO OR
SLIGHTLY LOWER THAN THOSE NOTED IN PREVIOUS DISCOVERED
FLIGHTS.

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C. THE AGMA TELEMETRY SIGNAL LEVEL DECREASED BETWEEN T + 124 SECONDS AND T + 126 SECONDS AND FADED OUT COMPLETELY AT T + 142 SECONDS. THE TELEMETRED DATA PRIOR TO THIS TIME SHOW THAT SEVERE ELECTRICAL CURRENT AND VOLTAGE TRANSIENTS WERE EXPERIENCED BETWEEN T + 77 SECONDS AND T + 87 SECONDS, AND BETWEEN T + 124 SECONDS AND T + 126 SECONDS. THE EVIDENCE OF ESPECIALLY SEVERE TRANSIENTS IN THE 1 KC ELECTRICAL SYSTEM IN ADDITION TO THE SHOCKS IN WHICH THE ONBOARD TRANSMITTERS CEASED OPERATION, INDICATES A MALFUNCTION IN EITHER THE DC POWER SUPPLY OR ITS LOAD. THE EXACT CAUSE OF THE MALFUNCTION HAS NOT YET BEEN DETERMINED. PRIOR TO THE LOSS OF AGMA TELEMETRY, ABNORMALLY HIGH TEMPERATURES WERE INDICATED ON THE STANDARD SIDE OF THE AGMA APT EQUIPMENT RACK AND IN THE AGMA TUNING FAIRING TUBES. THESE ABNORMAL TEMPERATURES AND THEIR POSSIBLE RELATION TO THE OBSERVED POWER TRANSIENTS ARE BEING INVESTIGATED.

3. COAST PHASE

A. AN AGMA TIME-TO-FIRE CORRECTION OF 5.34 SECONDS DURATION AND A VELOCITY-TO-BE-GAINED CORRECTION OF 2.34 SECONDS DURATION WERE TRANSMITTED BY THE STL GUIDANCE

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SYSTEM BETWEEN T + 155.02 SECONDS AND T + 161.63 SECONDS.

B. SEPARATION OF THE ORBITAL STAGE FROM THE BOOSTER STAGE WAS COMMANDED BY STL GUIDANCE AT T + 162.07 SECONDS AND THOR TELEMETRY DATA INDICATE THAT SEPARATION DID OCCUR.

4. ORBITAL STAGE BOOST PHASE

A. VERY LITTLE INFORMATION IS AVAILABLE REGARDING AGENA PERFORMANCE AFTER SEPARATION BECAUSE OF THE PRIOR LOSS OF AGENA TELEMETRY. THE ACQUISITION BEACON OPERATED AND WAS TRACKED UNTIL ABOUT T + 197 SECONDS. THE RADAR BEACON SIGNAL WAS TRACKED UNTIL T + 190 SECONDS AND WAS REACQUIRED AT ABOUT T + 232 SECONDS AND TRACKED THEREAFTER UNTIL T + 488 SECONDS. WHEN THE RADAR BEACON SIGNAL WAS REACQUIRED AT T + 282 SECONDS A CYCLIC VARIATION WAS NOTED IN THE SIGNAL LEVEL INDICATING THAT THE VEHICLE WAS TUMBLING.

B. THE TRAJECTORY OF THE VEHICLE AFTER THE BOOST PHASE WAS ESSENTIALLY BALLISTIC. WHEN THE RADAR TRACKING DATA ARE EXTRAPOLATED TO SEA LEVEL, THE INDICATED IMPACT POINT IS APPROXIMATELY 700 N.M. DOWNRANGE. THE PRESENTLY AVAILABLE DATA ARE INSUFFICIENT FOR A CONCLUSION THAT AGENA ENGINE OPERATION WAS INITIATED OR THAT IT WAS

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NOT DETERMINED

2. PAD DAMAGE

DAMAGE TO THE EQUIPMENT ON PAD 4 WAS VERY LIGHT.

SCENED. 4.

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